Collaborative Forest Landscape Restoration Program Proposal

Dinkey Landscape Restoration Project

Dinkey Project Planning Forum

Sierra National Forest
Pacific Southwest Region

May 2010

Executive Summary

The Dinkey Landscape Restoration (DLR) Project covers 154,000 acres of the Sierra National Forest and private lands in California's Sierra Nevada. The Project includes 130,000 acres of National Forest System (NFS) land and 24,000 acres of private land, with 20,000 acres of that private land owned by established landscape partners. The proposal seeks to accelerate restoration treatments on both federal and private lands. The targeted landscape will encompass three broad vegetation types that are prioritized ecosystems within the Sierra Nevada bioregion: (1) coniferous forest, (2) foothill hardwood and chaparral vegetation, and (3) montane meadows and riparian forests. The proposal takes advantage of recent successful collaborative efforts to implement a science-based approach to restoration as described in An Ecosystem Management Strategy for Sierran Mixed-Conifer Forests (North et al. 2009). Key features of the proposal are:

- The nearby residential communities (5000 homes) and recreational use areas (1.5 million/year) are deemed 'at risk' of private property loss from catastrophic wildfires; two Sensitive landscape-wide distributed species (California spotted owl and Pacific fisher) are at risk from habitat loss.
- Collaboration among diverse stake holders (environmental, timber industry, land owners, tribal, federal, state) has lead to a consensus toward forest restoration as demonstrated by strong support for the National Environmental Policy Act (NEPA) planning on projects for 2011 and 2012 (Dinkey N & S).
- A science based strategy supported by collaboration forms the basis of forest ecological restoration.
- Landscape restoration treatments are focused on reducing fire hazards, restoring forest structures consistent with the needs of the wide ranging fisher and spotted owl.
- Restoration treatments in 2010 treat approximately 3,100 acres and generate 6.1 million board feet of timber and 3,052 acres of prescribed fire. The 10-year treatment schedule includes 34,000 acres of mechanical restoration and up to 40,000 acres of prescribed fire treatment including with monitoring.
- Four watershed restoration plans were developed for 16,221 acres of benefitting watersheds. Fifty-seven noxious weed population centers are identified for eradication or control.
- Monitoring results and ongoing scientific studies (Pacific Fisher, California spotted owl demographic study, Teakettle experimental forest, and experimental watersheds) in or adjacent to the project area create a unique opportunity for collaboration and adaption supporting treatments.
- With treatments, wildfire fire line intensity would be decreased by 80 percent, with a 35 percent decrease in average suppression cost per acre from $344 to $122 per acre.
- Current mill infrastructure provides a significant in kind service contribution ($4.4 million). The loss of local mill infrastructure would make many fuels treatments uneconomical in the project area, the southern Sierra Nevada, and southern California. The next closest mill is 264 miles away.
- The DLR Project requests $15.1 million over the 10 year period of the project. This request includes $13.4 million for implementation and $1.7 million for monitoring in years 2010 to 2020. Total matching funds for the 10 year period are $18 million.

California spotted owl photo taken in Yosemite NP. – J. Felis (USGS BRD)

Table of Contents

1.0 Proposed Treatment

The Dinkey Landscape Restoration (DLR) Project is a science-based ecological restoration strategy that covers approximately 154,000 acres in the southern Sierra Nevada Mountain Range within the Sierra National Forest-Pacific Southwest Region, California. The goal of this restoration strategy is to provide ecosystem resilience and adaptive capacity to wildfire, drought, insects, pathogens, invasive species, pollutants, and climate change. Ecosystem resiliency will be characterized by a high degree of spatial heterogeneity at multiple spatial scales, reduced surface and ladder fuels, increased proportion of large diameter trees, large and contiguous areas of suitable habitat for Forest Service Sensitive species, and sufficient natural regeneration of shade-intolerant tree species for the creation of future fire-adapted forests.

This strategy will emphasize fire resilience, public and firefighter safety, key habitat for Sensitive species dependent on late-seral or water-dependent ecosystems, proper watershed function, healthy ecosystem processes, and landscape heterogeneity and diversity. The targeted landscape will encompass three broad vegetation types that are prioritized ecosystems within the Sierra Nevada bioregion: (1) coniferous forest, (2) foothill hardwood and chaparral vegetation, and (3) montane meadows and riparian forests. The foundation of this restoration strategy rests upon the following scientific and technical documents:

- Coniferous Forest
  - *An Ecosystem Management Strategy for Sierran Mixed-Conifer Forests* (North et al. 2009)
- Foothill Hardwood and Chaparral
  - *Guidelines for Managing California's Hardwood Rangelands by the California Integrated Hardwood Range Management Program* (1996)
  - *Proceedings of Symposia on Oak Woodland Ecology, Management, and Restoration in California* (PSW-GTR-160 1997; GTR-184 2001; and GTR-217 2008)
  - *Regenerating Rangeland Oaks Sustainability of Sierra Nevada Hardwood Rangelands (Standiford et al. 1996)*
  - *Ecological Foundations for Fire Management in North American Forest and Shrubland Ecosystems* (Keeley et al. 2009)
- Montane Meadows and Riparian Forests
  - *California Riparian Habitat Restoration Handbook* (Griggs 2009)
  - *Ecology, Biodiversity, Management, and Restoration of Aspen in the Sierra Nevada* (Sheppard et al. 2006)
  - *Applied River Morphology* (Rosgen 1996), and *Watershed Assessment of River Stability and Sediment Supply* (Rosgen 2006)

North et al. (2009) provides the primary restoration strategy for this project, as coniferous forests dominate the DLR Project landscape. However, these technical reports and framework documents together provide a comprehensive, current, and adaptive approach for restoring all prioritized ecosystems within the DLR Project area.

The DLR Project area includes 130,000 acres of NFS land, and 24,000 acres of private land for a total of 154,000 acres.

1.1 Need for Restoration

The following points highlight the need for landscape restoration in the DLR Project area and the objectives of the restoration strategy:

- Nearby residential communities are deemed 'at risk' of private property loss from catastrophic wildfires, and two Sensitive species (California spotted owl and Pacific fisher) are at risk from habitat loss from fire.

- The current landscape is in need of watershed treatments to keep consistent and clean stream flow protecting the hydro-electric generation facilities that provide power to large cities in Southern California.

- The DLR Project has and will benefit from the 'all lands' collaboration of the Dinkey Project Planning Forum; the Forum has identified restoration needs and guidelines for tree species composition, forest structure and habitat needs .

The 154,000-acre DLR Project landscape includes 130,000 acres of National Forest System (NFS) land and 24,000 acres of private land, with 20,000 acres of that private land owned by established landscape partners. Current landscape partners include Southern California Edison (power utility), Grand Bluffs Forest Conservation Association, and Friends of Camp El-O-Win. Approximately 5,000 private residences are scattered throughout or bordering the DLR Project area. The Shaver Lake, Pineridge, Cressmans, and Dinkey communities have been listed as 'at risk' of catastrophic fire (Federal Register, Volume 66, Number 160); as a result, the landscape includes 50,000 acres in the Wildland Urban Interface (WUI), with 6,000 acres of NFS land in the defense zone and 44,000 acres in the threat zone. The DLR Project includes major recreation areas that see more than 1.5 million visitor days each year.

1.2 Restoration Treatments

The four main treatments described here are a result of our established collaborative process and decades of scientific research that provide a robust monitoring baseline analysis.

- **Strategically placed mechanical restoration treatments.** Restoration treatments create a healthy, diverse, fire-resilient landscape pattern and stand structure by reducing stand densities and fuel loads and aid in disrupting large fires. Tree species and size classes that are consistent with a frequent low-intensity fire regime and are more resistant to fire, drought, insects, pathogens, and air pollution, would be promoted.

- **Two applications of prescribed fire (underburning)**. Prescribed fire and pre-treatments on 29,000 to 40,000 acres in the next 10-year period within the DLR Project area would be used to maintain reslilience. Fire resilience treatments would be placed to support and take advantage of mechanical restoration and promote resilience.
- **Watershed emphasis areas**. Restoration of proper watershed function and habitat for aquatic species would be emphasized. Completed water restoration plans, based on field surveys, have identified stream, meadow, and upland hydrologic function restorative treatments.
- **Noxious and invasive plant species control.** Noxious weed population centers would be treated in advance of mechanical and fire treatments for the eradication or control of noxious and invasive species.

A healthy, diverse, fire-resilient forest structure would be accomplished by reducing stand densities and fuel loads.

Forest restoration treatments would create structures consistent with the frequent fire regimes of the Sierra Nevada and provide structures resilient to changing regional climate conditions. Collaboratively developed tree priorities emphasize stand scale tree density and species composition based on field recognition and retention of micro-sites (tree clumps, wet

areas) that provide habitat for terrestrial and riparian species. Landscape pattern (heterogeneity) is based on slope, aspect, topographic position, and landscape feature (drainage, upland aspect slope). Mechanical treatments would generate sawlogs.

Fire resilience treatments emphasize reducing the effects of fire. These treatment areas would be in support of prescribed fire treatments through clearing small trees across the landscape. In addition, treatments of existing plantations would focus on improving tree growing conditions to accelerate late seral conditions. Fire severity and plantation maintenance treatments are expected to generate an additional 11 to 35 tons of biomass each year and small logs.

Outside of areas with structures, public and fire fighter health and safety will be promoted through a variable reduction in tree density, reduction of ground/surface fuels, and reductions in ladder and crown fuels consistent with restoration. Specifically the proposal will emphasize open stand conditions with tree density levels that vary by aspect and slope resulting in low potential for torching and crowning. Within areas with structures, public and fire fighter safety are promoted through reductions in ground fuels, ladder fuels, crown fuels, and maintenance of conditions that eliminate (to the extent possible) the potential for crown fire.

The first restoration planning (in compliance with the National Environmental Policy Act [NEPA]) will be completed in June of 2010. Implementation will occur in summer 2010. This encompasses approximately 3,000 acres and 6 million board feet (mmbf)(stewardship contract) of conifer forests on NFS lands. An additional 4,000 acres of prescribed fire on conifer and hardwood forest on NFS land in the landscape will be accomplished in 2010. Private landscape partners will be treating 4,500 acres in conifer and hardwood forest in the next two years and 16,500 acres over the next 10 years. Aquatic restoration treatments in 2011 will improve habitat for the endangered Lahontan cutthroat trout through road decommissioning in a 4,400 acre watershed.

The Dinkey Project Planning Forum is a group representing a diverse mix of interested parties including environmental, governmental, fire safety, forestry, industry, landowners and youth.

In years 2011 to 2020, the DLR Project proposes to treat 1,500 to 8,500 acres per year on NFS and private lands via a combination of prescribed fire, watershed improvement, and mechanical treatments. While each year will see the removal of trees and prescribed fire, each project may not generate stewardship dollars.

Total restoration treatments (10 years) on NFS lands will accomplish approximately 34,000 acres of mechanical treatments, 30,000 acres of prescribed fire, and 10,000 acres of watershed and habitat restoration. Restoration treatments create vegetation conditions consistent with frequent fire regimes for the Sierra Nevada.

1.3 Collaboration, Monitoring and Adaptive Management

The Dinkey Project Planning Forum has identified a process for developing restoration actions and NEPA implementation for scheduled treatment areas (2011–2020). The planning forum will use an assessment process to evaluate site-specific restoration needs for Sensitive, Threatened, and Endangered species. The collaborative process identifies treatments to meet ecological processes. The treatment schedule includes mechanical restoration treatment years followed by monitoring. Monitoring results and ongoing scientific studies in the project area are incorporated through the collaborative process into future management. This schedule allows the collaborative group to engage fully in multi-party monitoring and adaptive management.

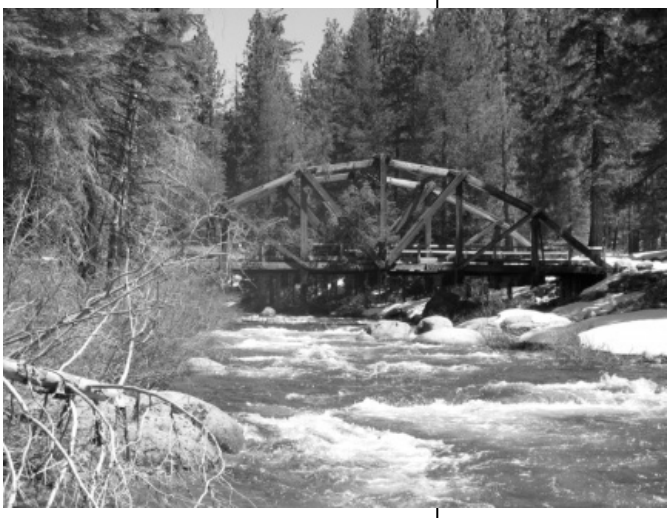
The Kings River Fisher Project (KRFP) monitoring effort, California spotted owl demographic study, the Teakettle Experimental forest, and Kings River Experimental Watersheds are found

within or adjacent to the DLR Project area. These research and monitoring efforts provide a unique setting for science-led research and monitoring to inform restoration treatments.

The KRFP was initiated in 2007 to fill gaps in our current understanding of fisher ecology and habitat requirements, and to address uncertainty surrounding the effects of timber harvest and fuels treatments on fishers and their habitat. The KRFP is found within the DLR Project area on both private and NFS lands using several monitoring techniques in a spatially nested design. Since February 2007, 59 fishers have been captured. Fifty-seven fishers have been fitted with radio-collars. The KRFP will provide monitoring of fisher and DLR treatments.

The California spotted owl demographic study was initiated in 1990 to estimate spotted owl reproduction, survival, and population rate of change and to examine the effects of habitat and habitat alteration (timber harvest and fuels treatment) on these parameters. The estimated population rate of change for spotted owls within the study area is not statistically different from a non-declining population. In 2009, 34 spotted owl pairs were found, 25 of which fledged young. Surveys are ongoing in the DRL Project area and will provide monitoring of spotted owls in the proposed 2010 DLR Project treatment areas.

The Teakettle Experimental Forest is adjacent to the DLR Project boundary. Foundational research within Teakettle provides information on how fundamental ecosystem processes respond to fire and thinning disturbance. Studies are focused on primary alterations in forest conditions. PSW/NAU Teakettle Carbon Stocks research that will be taking place in the next three years is immediately adjacent to the DLR Project area. This carbon stocks study will provide current scientific information relating to carbon sequestration following thinning and burning treatments, similar to those proposed in restoration areas.



Historic Dinkey Creek Bridge

The Kings River Experimental Watershed (KREW) is a watershed-level, integrated ecosystem project for headwater streams in the Sierra Nevada. Eight sub-watersheds have been chosen and fully instrumented to monitor ecosystem changes within streams adjacent to the DLR Project boundary. Watersheds are located in two groups: mixed-conifer forest and red fir/mixed-conifer forest. Treatments with these experimental watersheds will provide guidance to treatments within the DLR Project boundary.

The Dinkey Planning Forum, which includes scientific technical advisors, will assess successful implementation through improvements in fuels reduction, evaluation of burning program (acres burned vs. burning results), evaluations of habitat improvements (planned vs. actual), and evaluation of restoration treatment effects to California spotted owl and Pacific fisher habitat use, landscape-scale movements, and demographics. The Dinkey Planning Forum will issue a monitoring report annually and host a five year symposium.

2.0 Ecological Context

The collaborative group has developed ecological restoration desired conditions that are consistent with the frequent fire regimes characteristic of the Sierra Nevada mixed conifer, ponderosa pine, hardwood vegetation types. The DLR Project would restore tree species composition and vegetation structure, and reintroduce fire consistent with conditions under which wildlife habitat and ecosystem processes evolved in southern Sierra Nevada forests. Restored coniferous forest will look more like reconstructed forests in the Teakettle experimental forest adjoining the Dinkey Landscape: dominated by large pine and oaks, and with the heterogeneity and density found in forests subject to frequent fire and is consistent with historic visual characteristics.

The Dinkey Landscape includes the full range of ecological vegetation types found in the Sierra Nevada.

The Dinkey Landscape includes the full range of ecological vegetation types found in the Sierra Nevada: hardwoods (Blue oak woodland, chaparral, and montane hardwood), coniferous forest (sierra mixed-conifer, ponderosa pine, red fir, and subalpine), and wet meadows. Approximately 64 percent is coniferous forest, 23 percent is chaparral or hardwood, approximately 1 percent are wet meadow, 10 percent are barren (rock or thin soil) and approximately 2 are water or lakes. The DLR Project area ranges in elevation from 900 to 9,900 feet.

Proposed treatments are placed to disrupt fire patterns that have historically moved out of low-elevation chaparral and hardwood vegetation types into higher-elevation conifer-dominated forest types. A fire probability analysis conducted in 2008 indicates that during severe fire weather conditions, a 3,000 acre to 5,000 acre fire could burn across the landscape. Restoration treatments size and placement are designed to disrupt these fires. Individual restoration and fire resiliency treatment areas range in size from 1,000 to 3,000 acres.

The project area is dominated by Dinkey Creek Watershed, Big Creek watershed, Stevenson Creek Watershed, and Shaver Lake. Average annual precipitation ranges from 20 inches in hardwood forest types to almost 60 inches in coniferous forest types. The restoration strategy includes treatments to restore riparian habitat, protect Sensitive plant species, and improve watershed conditions in impaired watersheds across vegetation types.

2.1 Coniferous Forest Types

The vegetation supports known populations of Pacific fisher and California spotted owls. Monitoring and demographic studies have identified 27 Pacific fisher dens and 70 California spotted owls within the project area. Studies in the project area (Spencer et al. 2008) indicate that Pacific fisher habitat and populations are particularly vulnerable to severe fire. Habitat emphasis treatments recognize the importance of late seral forest structures, home range conditions, large trees and forest heterogeneity.

The project area has a history of fire exclusion that has led to a homogeneous landscape of dense conifer forest stands, with prolific establishment of 25- to 100-year-old, shade-tolerant white fir and incense cedar species. In addition, past fires and mechanical harvest have created large areas dominated by thick brush. High tree density/biomass creates conditions that predispose approximately 50 percent of the landscape to high severity fire, insect attack, and drought-induced mortality.

The DLR Project restoration strategy seeks to promote a heterogeneous stand structure and landscape patterns consistent with Sensitive species needs, and enhance the scenic quality. At the stand scale, retention of dense large tree clumps would provide habitat for the Pacific fisher, California spotted owl, and Northern goshawk. Additionally, expansion of natural tree

gaps, creation of growing space for shade-intolerant pines and oaks, and horizontal separation of canopy strata will facilitate vertical and horizontal stand heterogeneity, providing resiliency to fire, insects, and drought. Through the collaborative process, a field-oriented guide has been identified for retaining and enhancing habitat structures to achieve restoration goals.

Treatments on the landscape scale would follow topographic features to visually integrate treatments into the landscape, with denser conifer stands in wetter canyon bottoms and northeast-facing slopes, and sparser conifer stands on ridge tops and southeast-facing slopes.

Foothill hardwood and chaparral vegetation

Treatment measures will also enhance the area's scenic quality.

Hardwood forests are treated to create a complex mosaic of habitats that are consistent with frequent fire, with an overall landscape structure of irregular patches and abundant edges. Hardwood densities would decrease and understories would become more open. Consequently, hardwood trees would become larger and more space would become available for oak regeneration and grass production. These measures will also enhance the area's scenic quality. Habitat emphasis areas for deer winter range, California spotted owl, riparian species, and foothill bird species would be identified for each treatment area. Fire, grazing, and planting would be managed to enhance oak regeneration and Native American basket weaving materials. Fire and fuels treatments would be applied strategically to increase the effectiveness of fire suppression activities and assist in reintroducing fire into the hardwood and chaparral vegetation types. Noxious weed treatments and range improvement repairs are used to restore sites impacted by cattle distribution and concentration.

Hardwood and chaparral vegetation types are found below 4000 feet elevation. In contrast to typical oak woodlands in California, hardwood and chaparral vegetation in the Dinkey Landscape remains largely unfragmented. However, it has become more homogenized due to fire exclusion. Hardwood forests are currently dominated by manzanita and California lilac species in the understory with poor oak species regeneration. Private property (2700 acres) is found interspersed with NFS lands. Fire exclusion has resulted in denser homogenous stands prone to severe fire.

Montane meadows and riparian habitat

Meadow and riparian vegetation support 7 federally listed aquatic species that may be affected by activities occurring within the DLR Project area:

- **California red-legged frog** (Threatened; CRLF), *Rana aurora draytonii*
- **Foothill yellow-legged frog** (Forest Service Sensitive; RABO), *Rana boylii*
- **Lahontan cutthroat trout** (Threatened and Management Indicator Species; LCUTT), *Oncorhynchus (=Salmo) clarki henshawi*
- **Mountain yellow-legged frog** (Candidate and Forest Service Sensitive; RAMU), *Rana muscosa*
- **Relictual slender salamander** (Forest Service Sensitive; RSS), *Batrachoseps relictus*
- **Western pond turtle** (Forest Service Sensitive; WPT), *Clemmys marmorata* (Subspecies *marmorata* and *pallida*)
- **Yosemite toad** (Candidate and Forest Service Sensitive; BUCA), *Bufo canorus*

The Yosemite toad and Mountain Yellow-legged from occurs in high montane and subalpine lentic habitats (wet meadows, lakes, small ponds, and shallow spring channels), especially in relatively warm and shallow water areas of wet meadows with denser meadow vegetation. Western pond turtles occur primarily within the Sierra Nevada foothill region and require

permanent streams, rivers, lakes, and ponds, especially in areas with sufficient aquatic vegetation and open sites for basking. The relictual slender salamander inhabits mid-elevation montane meadows, springs, seeps, and other areas of moist soil, including sites adjacent to riparian habitats within mixed-conifer and ponderosa pine forests. The foothill yellow-legged frog occurs in permanent streams or montane meadows within the foothill and lower montane zones. An isolated population of Lahontan trout occurs in the DLR project. Meadow habitats also provide foraging habitat for great gray owls and nesting and foraging habitat for willow flycatcher. Conifer encroachment into meadows has replaced diverse willow and aspen meadow edges and resulted in reduced acres of wet meadows.

2.2 Watershed Function and Processes

The DLR Project comprises four large watersheds: two within Dinkey Creek watershed, one within Stevenson Creek watershed, and one within Big Creek watershed. Dinkey Creek is a tributary to the North Fork Kings River and Big Creek flows directly into Pine Flat Reservoir. Stevenson Creek flows into the main fork of the San Joaquin River.

Water recreation occurs in the streams, Shaver Lake, and Pine Flat Reservoir. Hydroelectric power generation occurs in the Stevenson Creek watershed and downstream of Big Creek, with a capacity of 288,000 kW.

A Baseline Watershed Assessment established that past impacts had caused nine sub-watersheds to exceed their lower Threshold of Concern (TOC) for cumulative watershed effects (CWE). A detailed CWE assessment of the nine sub-watersheds examined: channel condition in terms of channel bank stability and pool frequency and size, watershed improvement inventory data in terms of the number of sites found and the amount of erosion and sediment they may be contributing to the fluvial system, and aquatic species observed during aquatic surveys. Four watershed restoration plans were developed for 16,221 acres of benefitting watersheds.

Watershed restoration treatments address healthy functioning watersheds, clean water and improve aquatic habitat and riparian habitats. Treatments include removal of meadow-encroaching conifers, reshaping unstable slopes, stabilizing gullies in meadows, subsoiling and installing water bars on skid roads, clearing and cleaning culverts, and road decommissioning. Thirty-eight sites are proposed for treatment.

2.3 Invasive Species

Noxious weeds are proposed for eradication or control. Fifty-seven noxious weed population centers have been identified across the landscape. Noxious weed population centers would be treated in advance of mechanical restoration and fire treatments. Invasive species and noxious weed management will include the following strategies based on recommendations by Moser et al. (2009):

- Expand early detection and active management efforts and intensify enforcement of quarantines.
- Build capacity to increase understanding of and treatments for non-native invasive species.
- Strengthen basic forest health curriculum.
- Encourage cross-agency collaboration and support investment in agency resources.
- Promote public education and awareness.

3.0 Collaboration

This proposal builds on the successful collaborative effort known as the Dinkey Project Planning Forum, convened in 2009. The Planning Forum is a group representative of diverse interest groups: environmental, governmental, fire safety, forestry, industry, landowners, and youth. Some of the participating organizations are: California Department of Fish & Game, Highway 168 Fire Safe Council, Sierra Forest Legacy (environmental), Sierra National Forest, Southern California Edison (landowner), and Terra Bella Mill. The Planning Forum relies on technical resource specialists that include Pacific fisher researchers, California spotted owl researchers, the General Technical Report researchers, and the Sierra National Forest's public affairs officer.

The Planning Forum also has a technical subcommittee with an in-depth knowledge of fire, habitat, wildlife, and silviculture. This subcommittee develops detailed proposals for the full Forum's refinement and approval. With the decision to consider a landscape-scale effort, the collaborative is expanding its membership to engage more fully the nearby Big Sandy Rancheria tribal government and representatives of the Southern California Edison biomass facility, as well as youth. The Planning Forum has a communication plan to ensure that other interest groups, such as the Bureau of Land Management, county government, and other stakeholders are kept abreast of the collaborative forum's agreements and efforts.

The collaborative is a consensus-seeking body. Planning Forum members participate in forum outcomes and work together to create a problem-solving environment. All participants negotiate in good faith. The definition of consensus spans the range from strong support to abstention or "standing aside." If the Planning Forum is unable to reach agreement (although this has not occurred to date), the facilitator documents areas of agreement and disagreement and forwards to the Sierra National Forest and all other participants and the public. If unable to reach agreement, the Sierra National Forest will move forward as it deems appropriate.

The entities that are already collaborating on the DLR Project.

Several scientists and other specialists participate as a technical resource on an as-needed basis. As technical resources, they are available to answer inquiries and questions based on their scientific understanding or specific expertise. They can also be called upon to make recommendations on the issue at hand; however, they do not participate in formal decisions.

Planning Forum members represent the interests of their constituents in the collaborative's discussions and decisions. Members keep their constituents (board members, etc.) abreast of the collaborative's efforts and decisions and confirm their support for decisions. Members provide periodic briefings to other interested parties to keep them informed and solicit feedback on the group's work. The role of these briefings is to ensure support for planning outcomes beyond Forum membership.

The Sierra National Forest, with assistance from the U.S. Institute for Environmental Conflict Resolution, convened the Planning Forum in 2009. Over six months, the Planning Forum

developed a 3,000-acre project within the Dinkey project area (to be implemented in year one). The Planning Forum developed the proposed action to implement the concepts identified in North et al. (2009). Project implementation focuses on public and fire fighter safety; management for Pacific fisher and owl habitat; and restoration of forest structure and fire resiliency. The Planning Forum will participate in monitoring efforts, calling upon its technical resource experts to interpret and present data throughout implementation. Monitoring will be used to guide and adapt the strategy as appropriate over the course of the work plan, including the collaborative Planning Forum's efforts. Monitoring will be essential to sustain the broad range of stakeholder support and engagement.

The collaborative will meet periodically to evaluate the monitoring program and modify its management actions, consistent with the collaborative's agreed-upon restoration goals and objectives. Consistent with the work plan, the collaborative will do the following activities:

- Evaluate the year-one project, developed to implement the Ecosystem Management Strategy, to consider modified application in other project areas.
- Hold a science panel in 2015 and 2020 to interpret data and appropriate adaptive management.
- Meet annually with the Pacific fisher and California Spotted owl monitoring program to learn about the newest science and understanding gained through their efforts in the project area.
- Continue to involve the fisher scientists, authors from the Ecosystem Management Strategy General Technical Report, and other scientists as appropriate, to advise on the collaborative forum's recommendations.

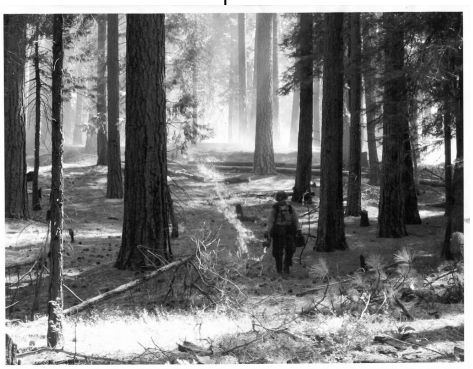
Sample Comments from Planning Forum Members:

"The Council is satisfied that under the plan as written, the goals of creating a more fire resilient forest and reducing the hazards to the several federally identified 'Communities at Risk' within the project area can be met, while also accounting for the protection of sensitive species and restoring natural process to the treated areas."
— Richard Bagley, President
Highway 168 Fire Safe Council

"This project will provide many jobs for those working in the woods. I would estimate this project will provide jobs for 25 loggers and 16 truck drivers. With the multiplier effect, the project will certainly have a positive economic impact on both Fresno and Tulare counties."
— Larry Duysen
Sierra Forest Products

4.0 Wildfire

The project area is at risk from catastrophic wildfires that threaten nearby communities, wildlife habitat, air quality, and water quality. Analysis of the landscape indicates approximately 50 percent of the landscape is currently subject to high severity wildfire. Large, severe fire events have not occurred within the Dinkey landscape since 1989. Fire history and tree-ring studies in the DLR Project coniferous zone suggest a historical fire return interval of every 3 to 12 years (Drumm 1996; Phillips 1998; North et al. 2004). The project area has missed as many as 20 fires. The lack of frequent mixed-intensity fires has caused conifer stands to become overstocked with fire-intolerant trees and shrubs, converting it to a fire susceptible forest type in which high-intensity fires are prevalent. Fire-intolerant species tend to form unhealthy stands prone to large-scale wildfires, as well as increased outbreaks of disease and bark beetle-related mortality(Graham et al. 1999). Fire return intervals in the red fir and sub-alpine type are longer.



Prescribed fire in the Dinkey Landscape – third entry.

Striking changes in structural and functional components of the Dinkey landscape have occurred since 1850, largely due to alterations in the pre–Euro-American settlement fire regime. Today unnatural fuel accumulations exist in conifer and hardwood forest vegetation types along with associated increases in forest stand densities. With these shifts have come changes in fire regime characteristics including large stand–destroying fires (Caprio and Graber 2000). Following nearly a century of fire exclusion, the DLR Project area has significantly increased in stand densities and shifted from a frequent low-intensity fire regime to a low-frequency and high-severity regime with high crown fire potential, similar to other Sierra Nevada forests (Mutch and Cook 1996). This dramatic shift, coupled with prolonged drought and epidemic levels of insects and pathogens, threaten to produce extensive forest mortality throughout the DLR Project area. The occurrences of such severe large fires are well outside the natural range of variability and thus considered detrimental to Sierra Nevada ecosystems (Weatherspoon and Skinner 1995).

The recorded fire history of the project area dating back to 1910 shows a total of 23 fires occurring. The largest fires werebetween 520 and 5,000 acres. Fire history data and frequency (all fires by size class) for the entire High Sierra Ranger District (1965–2005) was entered into ProbAcre, which is a computer software model, was used for computing aggregate burned acreage probabilities for wildfire risk analysis. There is a 75 percent probability that all the fires occurring on the District will total 1,000 acres every year. There is a 50 percent probability that total acreage burned over the District will be roughly 2,200 to 5,000 acres every year.

The Sierra National Forest has not experienced the devastating severe fires of the neighboring Sequoia (south border) and Stanislaus (north border) National Forests. The wildfire probabilities above are based on the lower rate of large fires found on the Sierra. Whereas the rate of ignition, fuel hazard, vegetation components, and topography is similar across each forest, the probability of fire reflects the success of suppression forces and unknown factors. Continued fire exclusion and suppression makes the future fire ever more destructive. Wildfires in the DLR Project area are frequent enough and large enough to have detrimental effects on the human population and forest environment.

Models predict that in untreated conifer and hardwood stands, fire behavior can be characterized by high-intensity surface fires; torching of trees (passive crown fire) is likely, with active crowning possible depending on wind conditions. Flame lengths range from 7 to 66

feet in height when fine fuel moistures are 3 percent, mid-flame (eye level) wind speeds range between 8 and 15 miles per hour (with gusts to 22 mph), and rates of spread range from 66 to 118 chains per hour. Modeling showed passive to active crown fires are possible under severe fire weather conditions.

Reductions of fire severity are proposed to occur through tree removal, ground/surface fuel reduction, brush removal, and prescribed fire. The Dinkey Landscape currently has more than 20,000 acres of planned prescribed fire on NFS and private lands. The restoration strategy reintroduces fire to the landscape while reducing the potential for high-severity fire in the Wildland Urban Interface (WUI). The project restoration strategy has been developed in collaboration with the Highway 168 Fire Safe Council and is coordinated with the Community Wildfire Protection Plan. Current values at risk include thousands of private homes, major recreation sites, businesses, and important wildlife habitat.

The proposed treatments to reduce fire severity emphasize public and fire fighter safety. Treatments specifically reduce post-treatment flame lengths below 4 feet. Flame lengths, less than 4 feet, allow for direct attack by fire fighters. Intensive treatments among and near residences eliminate the potential for crown fire.

Using the Wildfire Decision Support System (WFDSS) various fire size scenarios were modeled under severe weather conditions. The fire behavior characteristic, Fire Line Intensity (FIL), is used to describe the fire behavior that may be expected pretreatment and post treatment. A Stratified Cost Index (SCI) Table (cost per acre) was developed for each fire size scenario and range of FILs. Based on the SCI table for timbered areas, for a fire of 4,000 acres (considered a large fire on the forest) an average fire cost with no treatment is expected to fall within an FIL of 5 with an average cost of $344 per acre. With treatments, FIL would be decreased from 5 to 1 in most treated areas, with a 35 percent decrease in average cost per acre from $344 to $122 per acre. This modeling does not account for additive benefits in the strategic placement of treatment areas and the damping of fire behavior outside of treated areas as well as within treatment areas. This has the potential of helping to reduce fire size potential which could reduce per acre fire costs.

The 10-year Comprehensive Strategy Implementation identifies goals and measures for their attainment. The Dinkey Landscape restoration strategy incorporates emphasis areas for restoration, public safety, and fire fighter safety and measures consistent with these goals (Table 4-1).

Table 4-1. DLR Project's 10-year Comprehensive Monitoring Goals

10-year Comprehensive Goals	Measure of Successfully Implemented Collaboration
Goal 1 – Improve Fire Prevention and Suppression	Reduce the average cost of wildfire suppression below the 2010 SCI by fire class
Goal 2 – Reduce Hazardous Fuels	Acres of fuels reduction in WUI
Goal 3 – Restoration of Fire-Adapted Ecosystems	Acres of restoration and acres of wildfire for resource benefit
Goal 4 – Promote Community Assistance	The Highway 168 Fire Safe Council Community Wildfire Protection plan implementation acres, economic benefit to communities

5.0 Utilization

Estimated total federal volume in sawlogs for the 10-year proposal (years 2010 to 2020) is estimated at 47 million board feet or 6.5 million cubic feet. Restoration treatments are estimated to produce 165,000 bone dry tons of biomass for the 10 year planning period. Sawlog and biomass production is estimated for the 32,000 acres of coniferous forest types. The estimates are from simulated harvests for each of the proposed strategically placed mechanical restoration treatments. An undetermined amount of biomass may result from the 4,000-acre management areas located in hardwood/chaparral restoration vegetation types. The treatment schedule (Table 5-1) displays the volume and acres generated per year.

The DLR Project estimates 47 million board feet in small sawlogs and 165 tons of biomass material generated over the 10 year planning period.

In addition, 11,000 acres of plantation treatments are scheduled to accelerate old forest structures and generate biomass and limited sawlogs. Ninety percent of plantations are under 30 years of age and found on slopes amenable to mechanical treatment; these plantations have the potential of generating an additional 28,000 bone dry tons of biomass over the 10-year planning period. Approximately 10 percent of the plantations are 30 to 50 years of age and will generate sawlogs and biomass.

Pre-burn treatments within scheduled underburn areas are outside of strategically placed restoration treatments or plantations. Pre-burn treatments are scheduled to begin in fiscal year 2013. These treatments are intended to reduce smoke production from prescribed fire treatments. These pre-burn treatments are estimated to generate an additional 30,000 bone dry tons of biomass..

Forest Vegetation Simulator (FVS) modeled estimates indicate that 75 percent of sawlog material is generated from trees of 10–20 inch diameter breast height (DBH). The other 25 percent of material will be generated from intermediate size trees 20–30 inches DBH. Intermediate size trees are removed to achieve ecological restoration objectives. Since the removal of fire from the Dinkey Landscape in 1910, 25- to 100-year-old shade-tolerant incense cedar and white fir trees have encroached into stands. Sawlog removals are expected to generate 800 to 1,500 board feet per gross acre of treatment, or 1,200 to 3,000 per net acre of treatment.

Currently only Sierra Forest Products mill, located 90 miles from the project area, provides infrastructure for utilization of sawlog material. The Sierra Forest Products mill services the Sequoia National Forest, Sierra National Forest, and parts of the Stanislaus National Forest. In addition, the Sierra Forest Products mill provides sawmill capabilities to all of southern California. A cedar bark and greenery mill is located 120 miles north of the project area. The next closest mill is the Sierra Pacific Industries mill, east of Sacramento, California, 264 miles from the DLR Project area.

The loss of local mill infrastructure would make many fuels treatments uneconomical in the project area, the southern Sierra Nevada, and southern California. The next closest mill is 264 miles away

Restoration treatments in 2010 are expected to generate sufficient sawlog value to cover the cost of timber removal, but not for small tree removal. Harvest costs are relatively high due to the volume of small tree removal in restoration treatments. Value estimates shown in Table 5-1 reflect the average of current low and future high value market conditions for fiscal years 2010 and 2020. Table 5-1 displays stewardship values or costs (timber value – costs).

Biomass material will be transported to biomass electrical generation plants in the central San Joaquin Valley near Fresno, California. The Biomass Crop Assistance Program (BCAP) is expected to provide a matching subsidy to transport material to one of four BCAP participating biomass electrical generation plants. Sawlog value is estimated to subsidize removal of small material to log landings in mechanical restoration treatment areas. The biomass material

generated from treatments is expected to qualify for the BCAP subsidy for years 2010 to 2020. Biomass revenue generation is expected to break even within mechanical restoration treatments, and to be below cost in plantation and pre-burn treatment areas.

Private landscape partners are expected to generate an additional 4 million board feet of sawlogs from a yearly 1,500 acres of treatment. Biomass generation is expected to be 83,000 bone dry tons of material over the 10-year planning period. Private landscape partners estimate 44 million board feet of sawlogs from 16,500 treatment acres over the 10-year term.

Southern California Edison (SCE) is initiating a review at the request of the Forest Service to build a biomass facility on Forest Service land within the Dinkey Landscape. Transportation is the main cost of biomass utilization, so operation of this facility decreases the cost of this restoration project, and also makes feasible the utilization of biomass and small logs from other projects on the forest. Small log harvests and long term stewardship contracts would serve to offset the cost of biomass removal. Stewardship contracts would allow flexibility for contractors to extract the most value from forest treatments. Market conditions would dictate break points between biomass and sawlogs.

Stewardship values generated from 2010 treatments are $194,000, and restoration treatments are expected to generate 6.1 mmbf sawlog volume and 11,000 tons of biomass. Restoration treatments in hardwood, chaparral, or montane chaparral are not likely to generate stewardship dollars. The restoration treatment table (Table 5-1) below displays the volume removal by year and expected value.

If the Dinkey Landscape Restoration Project moves forward, the Southern California Edison Company is willing to participate in the project by managing its lands within the project boundaries, consistent with the DLR project goals to create a more fire resilient landscape, enhance wildlife habitat, and move toward restoring our lands closer to historic conditions, similar to landscapes that existed in this area prior to the late nineteenth century.

Table 5-1. DLR Project Sawlog and Biomass Volume of Removal by Year

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
NFS Lands												
Gross Treatment Acres	3100	0	8314	0	5964	0	7083	0	4754	0	5277	34,492
Net Harvest Acres	2800	0	6371	0	4179	0	7083	0	4754	0	4511	29,698
Sawlog Volume (mmbf)	6.1	0.0	8.7	0.0	9.2	0.0	9.8	0.0	5.3	0.0	8.6	47.7
Sawlog Value/ Stewardship Value ($1,000)	$194	$0	$66	$0	$164	$0	$187	$0	$57	$0	$214	$882.7
Biomass bone dry tons (1,000 tons)	10.7	11.2	13.6	13.7	14.3	14.3	14.3	12.2	12.2	12.2	35.9	165
Biomass Value ($1,000)	$11	$11	$14	$14	$14	$14	$14	$12	$12	$12	$36	165
Private Lands												
Private Acres	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	16500
Sawlog Volume (mmbf)	4	4	4	4	4	4	4	4	4	4	4	44

6.0 Investments

The Sierra National Forest has purposely defined "investments" and "benefits" broadly so that it can capture the value added by being inclusive of the effort, resources, and money contributed by the Collaborative Group and their constituents. It attempts to capture funds spent on Federal land for purposes of matching funding requirements, while also recognizing investments of industry and non-profit groups actively assisting DLR Project efforts.

Likewise the definition of "benefits" is broadened to include and capture many valuable non-monetary benefits. This allows the Forest to discuss with the public the direct cost savings of fighting fires and reducing property damage, and helps to define the benefits of clean air, clean water, and healthy lands enjoyed by San Joaquin Valley residents and the millions of visitors that visit this landscape.

6.1 Accountability and Reporting

In a long-term project with complex funding (many sources) it is imperative to have accurate and consistent accounting and reporting. The Sierra National Forest has chosen a three-prong approach that uses existing accounting and reporting systems and is responsive to established requirements.

- Reporting through federal systems such as Work Plan will be continued. This will include preliminary Work Plans, mid-year review, and end of year fiscal reports. The CFLRA requires annual reporting of performance measures from the *10 Year Comprehensive Strategy Implementation Plan* (2006) which will also discuss changes to wildfire management and ecological restoration treatments over time.
- Private land partners will continue utilizing their internal accounting systems, to reduce the burden of cooperating partners with extra reporting. Additional Reports, as required, will be forwarded as a measure of the "investment" by other institutions which affect the landscape and program.
- Finally, to ensure that the Collaborative Group stays involved, yearly reporting to the group will bring into account the larger concepts of "investments" and "benefits" presented earlier. This is to ensure that the monitoring can make real-time adjustments over the 10-year time period of the project.

6.2 Investments (Synergy and Multipliers)

Federal Funding (Monitoring of owls and fisher, prescription burning program for restoration, Stevens Act, American Recovery and Reinvestment Act funded projects (ARRA), subsequent projects, stewardship contracts [Dinkey North and South restoration treatment areas], and recreation.)

Federal investments (matching funds) are anticipated to be approximately $1.7 million in 2010 and $1.3 million in 2011. This investment includes: preparation of stewardship contracts to complete the initial restoration projects—Dinkey North and South (3,000 acres), ARRA dollars, prescribed fire (4,000 acres), "Hands on the Land" youth employment , understory thinning (1,000 acres), and baseline monitoring for Pacific fisher and California spotted owl.

Federal investments in years 2012 to 2020 are expected to increase up to $1.8 million annually as NEPA implementation for restoration projects is completed. This direct investment in

restoration using appropriated dollars includes: prescribed fire funding (forest fuels dollars), implementation monitoring, stewardship dollars, timber value, watershed restoration dollars, and restoration improvement dollars, road reconstruction, and decommissioning.

Private Funding (Biomass electrical generation plant, lumber mill, monitoring on private lands, timber sales on private lands, vegetation management on private lands.)

Non-federal investments include mill infrastructure contributions to landscape restoration on federal lands. This infrastructure value is the difference between the log hauling cost to the Sierra Forest Products sawmill and to the next closest sawmill 264 miles to the north. This value should result in a direct contribution of between $0.5 million and $1 million for each year that includes mechanical restoration treatments or $4.4 million for 10 years. This can also be considered a cost savings to the government that can be applied to additional restoration work.

Private sawmill infrastructure directly contributes $4.4 million in non-federal investments

Sierra Nevada Legacy (environmental partners) has pledged $330,000 dollars to support monitoring and planning efforts.

Private landscape investment includes 4,500 acres of fuels reduction and habitat restoration treatments on Grand Bluffs and SCE forest lands over the next two years, and 15,000 acres over the next 10 years. In addition, with the announcement of SCE's intention to review plans for a biomass facility, additional restoration capacity is added. The DLR Project increases the likelihood of biomass and small log infrastructure. SCE has offered to provide a letter of support and the conceptual plans for the biomass and small log facility. Employment estimates from timber industry collaborative members indicate that the DLR Project could generate an additional 100 to 200 woods and mill jobs for the life of the project.

6.3 Benefits

The definition of "benefits" captures many valuable non-monetary and monetary benefits from the DLR Project. The inclusion of monetary and non-monetary benefits broadens the scope of public benefit: direct cost savings of fire suppression, reduced property damage, clean air, clean water, and healthy lands enjoyed by residents of the San Joaquin Valley and millions of visitors. Additionally, maintaining sawlog milling infrastructure benefits both restoration objectives and products vitally important to the economic and social setting of California communities.

The DLR Project will provide jobs. Endemic unemployment in Fresno, Tulare, and Kern counties is 11+ percent (California 9.9%); 22 percent of the population and 18 percent of families live below the poverty level; per capita income is 17 percent less than the national rate; and the ratio of poor to rich is three times the California rate. Employment estimates from timber industry collaborative members indicate that the DLR Project could generate an additional 100 to 200 woods and mill jobs.

6.4 Letters of Support

Letters of support have been received from key industries such as Sierra Forest Products (Terra Bella sawmill), Southern California Edison (forest land owners), and the Highway 168 Fire Safe Council.

7.0 Funding Estimate

A funding estimate for each fiscal year (2010 to 2020) is provided below. Each estimate includes a funding table and/or a brief narrative of funding category, matching funds, and the Collaborative Forest Landscape Restoration Program (CFLRP) request for each fiscal year.

The DLR Project requests $15.1 million over the 10 year period of the project. This request includes $13.4 million for implementation and $1.7 million for monitoring in years 2010 to 2020. Total matching funds for the 10 year period are $18 million.

The largest matching funds come from Pacific fisher and California spotted owl implementation monitoring ($7 million) and mill infrastructure restoration support (cost avoidance) ($4.4 million). In particular Line 4 of the Annual Funding Tables includes the cost avoidance, through continued utilization of the Terra Bella mill.

SCE ($220,000) and Sierra Nevada Legacy ($330,000) provide private matching funds for implementation monitoring of $.55 million over the ten year planning period. The remaining matching funds are from appropriated federal dollars.

CFLRP dollars are requested to accomplish small tree removal post-commercial harvests not covered by stewardship dollars and plantation maintenance, or $4.1 million and $2.7 million respectively over ten years. The request also includes a 50 percent match (or increase) of contract implementation and preparation for commercial, service, and stewardship contracts of $1.3 million.

$1.2 million CFLRP dollars are requested to accomplish watershed restoration, meadow/riparian restoration, road decommissioning, and road reconstruction for the 10 year planning period. Meadow and riparian habitat restoration is expected to start in fiscal year 2014 and continue until 2017. Watershed restoration plans are complete and NEPA documents will be completed in the fall of 2010, to begin implementation in fiscal year 2011.

$1.2 million are requested to increase the "Hands on the Land" Youth employment and training program from its current 400 youth work days to 1800 youth work days. Funds will cover youth pay, transportation and supervision/training.

CFLRP funds are requested to increase the prescribed fire program from approximately 3,200 acres of annual treatment to approximately 4,000 acres annually. The DLR Project proposal requests a 35 percent increase in fuels treatment dollars funded through CFLRP or $2.9 million over 10 years. This includes mechanical pre-treatment.

The request includes implementation monitoring dollars for changes in habitat/vegetation using LIDAR and ground plots in fiscal years 2010 and 2020. Watershed/soils monitoring is requested for these for each of the ten years. CFLRP dollars for a symposium and proceedings are requested in years 2015 and 2020 to compile monitoring results.

Landscape partners are vigorously pursuing restoration treatments. Private landscape partners are expected to spend $8.5 million to achieve restoration goals.

7.1 Assumptions

The funding request assumes that current appropriated funding for owl and fisher monitoring, contract preparation, and treatments will continue. In addition, current matching funds for the "Hands on the Land" youth training program will continue unchanged. The funding request also assumes that the Sierra Forest Products mill remains open and contributes towards meeting the restoration objectives. Current timber values are an average between current poor timber markets and future improved markets.

The request expands and accelerates the reintroduction of fire (46,495 acres). The current burn program resulted in an average of 3,200 acres over the past five years. This accomplishment is based on limitations on allowable burn days (weather and smoke) and personnel. The request provides for an increase in NFS personnel to accomplish the increased acreage. Pre-fire smoke reduction treatments are proposed for fiscal years 2013 to 2017.

The funding request assumes that the cost of restoration treatments and management on private lands will remain constant across the ten year period.

Table 7-1. Proposed Acres of Treatments by Fiscal Year

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Mechanical restoration acres	3,100	0	8,314	0	5,964	0	7,083	0	4,754	0	5,277	**34,492**
Fire resilience pre-treatment acres	0	0	0	402	651	600	600	600	0	0	0	2,853
Rx fire acres	3,052	4,541	7,881	2,679	4,342	4,000	4,000	4,000	4,000	4,000	4,000	**46,495**
Watershed restoration acres	0	5,150	5,150	3,858	0	0	0	0	0	0	0	**14,158**
Road decommission miles	0	2	0	0	0	2	0	2	2	0	0	**8**
Meadow riparian habitat acres	0	0	0	0	50	100	225	50	0	0	0	**425**
Plantation maintenance acres	230	600	800	1,200	900	1,200	1,200	1,200	1,200	1,200	1,200	**10,930**
Pine/oak regeneration acres	0	0	93	0	249	0	179	0	212	0	143	876
Invasive species eradication or control acres	4	4	5	45	45	45	45	5	5	5	0	**208**
Youth employment days	400	600	1800	1800	1800	1800	1800	1800	1800	1800	1800	

Fiscal Year 2010

$1.37 million in CFLRP funding is requested for fiscal year 2010. This funding is based on a match of $1.96 million in appropriated funds, trust funds, timber value, base line implementation monitoring, youth employment (Hands on the Land), hazardous fuel dollars, contract layout and preparation, and private funds. Private partners will contribute (SCE and Sierra Nevada Legacy) will contribute $47,000 dollars toward implementation monitoring. The Hands on the Land youth program trains 20 rural high school youth and provides a $10,000 match towards the DLR Project.

Requested CFLRP funding would be used to complete stewardship contract work. This would include small tree cutting and slash removal, from within developed areas, at an estimated cost of$500,000. In addition, the 2010 funding request covers additional acres of plantation maintenance (contract preparation and service contract) for $65,000. CFLRP Funds would also be used to complete implementation monitoring (remote sensing and field data collection).

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2010** to match funding from the CFLRP Fund

Fiscal Year 2010 Funding Type	Dollars/Value Planned
FY 2010 Funding for Implementation	$1,008,761
FY 2010 Funding for Monitoring	$360,000
1. USFS Appropriated Funds	$265,456
2. USFS Permanent & Trust Funds	$106,000
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$593,947
5. Estimated Forest Product Value	$193,683
6. Other (specify)	$800,000
FY 2010 Total (total of 1–6 above for matching CFLRP request)	$1,959,086
FY 2010 CFLRP request (must be equal to or less than above total)	$1,368,761

Funding off NFS lands associated with proposal in FY 2010 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2010 Funding Type	Dollars Planned
USDI BLM Funds	$10,000
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Fiscal Year 2011

This fiscal year sees watershed restoration treatments benefiting 5,150 watershed acres. In addition treatment of 2 miles of road would be decommissioned to benefit the endangered Lahontan cutthroat trout. Prescribed fire treatments begin to increase (15% over estimated average) in this year. Youth employment is proposed to increase as well.

Funds are requested to prepare contracts for tree removal, watershed restoration, trust funds, and implementation of these treatments. Matching funds are a combination of appropriated dollars, private partnership in kind services, private partnership funds.

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2011** to match funding from the CFLRP Fund

Fiscal Year 2011 Funding Type	Dollars/Value Planned
FY 2011 Funding for Implementation	$618,278
FY 2011 Funding for Monitoring	$150,500
1. USFS Appropriated Funds	$383,778
2. USFS Permanent & Trust Funds	$63,750
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$35,000
5. Estimated Forest Product Value	$0
6. Other (specify)	$810,000
FY 2011 Total (total of 1–6 above for matching CFLRP request)	$1,292,528
FY 2011 CFLRP request (must be equal to or less than above total)	$768,778

Funding off NFS lands associated with proposal in FY 2011 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2011 Funding Type	Dollars Planned
USDI BLM Funds	$10,000
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2012** to match funding from the CFLRP Fund

Fiscal Year 2012 Funding Type	Dollars/Value Planned
FY 2012 Funding for Implementation	$1,947,625
FY 2012 Funding for Monitoring	$127,360
1. USFS Appropriated Funds	$796,469
2. USFS Permanent & Trust Funds	$85,000
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$840,758
5. Estimated Forest Product Value	$66,041
6. Other (specify)	$810,000
FY 2012 Total (total of 1–6 above for matching CFLRP request)	$2,598,267
FY 2012 CFLRP request (must be equal to or less than above total)	$2,074,985

Funding off NFS lands associated with proposal in FY 2012 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2012 Funding Type	Dollars Planned
USDI BLM Funds	
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2013** to match funding from the CFLRP Fund

Fiscal Year 2013 Funding Type	Dollars/Value Planned
FY 2013 Funding for Implementation	$828,380
FY 2013 Funding for Monitoring	$127,360
1. USFS Appropriated Funds	$170,126
2. USFS Permanent & Trust Funds	$127,500
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$35,000
5. Estimated Forest Product Value	$0
6. Other (specify)	$810,000
FY 2013 Total (total of 1–6 above for matching CFLRP request)	$1,142,626
FY 2013 CFLRP request (must be equal to or less than above total)	$955,740

Funding off NFS lands associated with proposal in FY 2013 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2013 Funding Type	Dollars Planned
USDI BLM Funds	
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2014** to match funding from the CFLRP Fund

Fiscal Year 2014 Funding Type	Dollars/Value Planned
FY 2014 Funding for Implementation	$1,781,255
FY 2014 Funding for Monitoring	$132,348
1. USFS Appropriated Funds	$339,859
2. USFS Permanent & Trust Funds	$95,625
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$888,251
5. Estimated Forest Product Value	$164,351
6. Other (specify)	$810,000
FY 2014 Total (total of 1–6 above for matching CFLRP request)	$2,298,086
FY 2014 CFLRP request (must be equal to or less than above total)	$1,913,603

Funding off NFS lands associated with proposal in FY 2014 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2014 Funding Type	Dollars Planned
USDI BLM Funds	
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2015** to match funding from the CFLRP Fund

Fiscal Year 2015 Funding Type	Dollars/Value Planned
FY 2015 Funding for Implementation	$1,063,033
FY 2015 Funding for Monitoring	$230,488
1. USFS Appropriated Funds	$317,519
2. USFS Permanent & Trust Funds	$127,500
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$45,000
5. Estimated Forest Product Value	$0
6. Other (specify)	$810,000
FY 2015 Total (total of 1–6 above for matching CFLRP request)	$1,300,019
FY 2015 CFLRP request (must be equal to or less than above total)	$1,293,521

Funding off NFS lands associated with proposal in FY 2015 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2015 Funding Type	Dollars Planned
USDI BLM Funds	
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2016** to match funding from the CFLRP Fund

Fiscal Year 2016 Funding Type	Dollars/Value Planned
FY 2016 Funding for Implementation	$2,131,231
FY 2016 Funding for Monitoring	$126,067
1. USFS Appropriated Funds	$356,056
2. USFS Permanent & Trust Funds	$127,500
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$941,856
5. Estimated Forest Product Value	$187,308
6. Other (specify)	$810,000
FY 2016 Total (total of 1–6 above for matching CFLRP request)	$2,422,721
FY 2016 CFLRP request (must be equal to or less than above total)	$2,257,297

Funding off NFS lands associated with proposal in FY 2016 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2016 Funding Type	Dollars Planned
USDI BLM Funds	
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2017** to match funding from the CFLRP Fund

Fiscal Year 2017 Funding Type	Dollars/Value Planned
FY 2017 Funding for Implementation	$1,035,475
FY 2017 Funding for Monitoring	$96,078
1. USFS Appropriated Funds	$300,963
2. USFS Permanent & Trust Funds	$127,500
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$35,000
5. Estimated Forest Product Value	$0
6. Other (specify)	$810,000
FY 2017 Total (total of 1–6 above for matching CFLRP request)	$1,273,463
FY 2017 CFLRP request (must be equal to or less than above total)	$1,131,553

Funding off NFS lands associated with proposal in FY 2017 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2017 Funding Type	Dollars Planned
USDI BLM Funds	
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2018** to match funding from the CFLRP Fund

Fiscal Year 2018 Funding Type	Dollars/Value Planned
FY 2018 Funding for Implementation	$1,122,800
FY 2018 Funding for Monitoring	$100,328
1. USFS Appropriated Funds	$324,388
2. USFS Permanent & Trust Funds	$111,000
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$526,981
5. Estimated Forest Product Value	$57,005
6. Other (specify)	$210,000
FY 2018 Total (total of 1–6 above for matching CFLRP request)	$1,229,374
FY 2018 CFLRP request (must be equal to or less than above total)	$1,223,128

Funding off NFS lands associated with proposal in FY 2018 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2018 Funding Type	Dollars Planned
USDI BLM Funds	
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2019** to match funding from the CFLRP Fund

Fiscal Year 2019 Funding Type	Dollars/Value Planned
FY 2019 Funding for Implementation	$513,481
FY 2019 Funding for Monitoring	$96,750
1. USFS Appropriated Funds	$241,231
2. USFS Permanent & Trust Funds	$120,000
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$39,000
5. Estimated Forest Product Value	$0
6. Other (specify)	$210,000
FY 2019 Total (total of 1–6 above for matching CFLRP request)	$610,231
FY 2019 CFLRP request (must be equal to or less than above total)	$610,231

Funding off NFS lands associated with proposal in FY 2019 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2019 Funding Type	Dollars Planned
USDI BLM Funds	
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in **FY 2020** to match funding from the CFLRP Fund

Fiscal Year 2020 Funding Type	Dollars/Value Planned
FY 2020 Funding for Implementation	$1,468,910
FY 2020 Funding for Monitoring	$199,602
1. USFS Appropriated Funds	$509,519
2. USFS Permanent & Trust Funds	$127,500
3. Partnership Funds	$0
4. Partnership In-Kind Services Value	$801,406
5. Estimated Forest Product Value	$214,344
6. Other (specify)	$210,000
FY 2020 Total (total of 1–6 above for matching CFLRP request)	$1,862,768
FY 2020 CFLRP request (must be equal to or less than above total)	$1,668,512

Funding off NFS lands associated with proposal in FY 2020 (does not count toward funding match from the CFLRP Fund)

Fiscal Year 2020 Funding Type	Dollars Planned
USDI BLM Funds	
USDI (other) Funds	
Other Public Funding	
Private Funding	$790,000

8.0 Funding Plan

An initial estimate of approximately $350,000 is anticipated for planning each year of the proposal starting in fiscal year 2011. Both contract and Forest Service specialists would complete necessary planning. Planning in FY 2010 will be used to develop categorical exclusions (CE) for: watershed restoration (3,000 acres), prescribed fire (1,000 acres), and small tree mechanical and hand treatments (500 acres). An additional $65,000 in planning dollars is requested for fiscal year 2010. Planning dollars in fiscal year 2011 will develop: an Environmental Assessment (EA) for 3,000 acres of restoration treatments (stewardship contracts) for fiscal year 2012/2013 implementation; an EA for watershed and habitat restoration for 5,000 acres for fiscal year 2012 implementation; and a Categorical Exclusion for road decommissioning (3 miles).

9.0 USDI Funding

Not applicable

10.0 Other Funding

Not Applicable

11.0 Maps

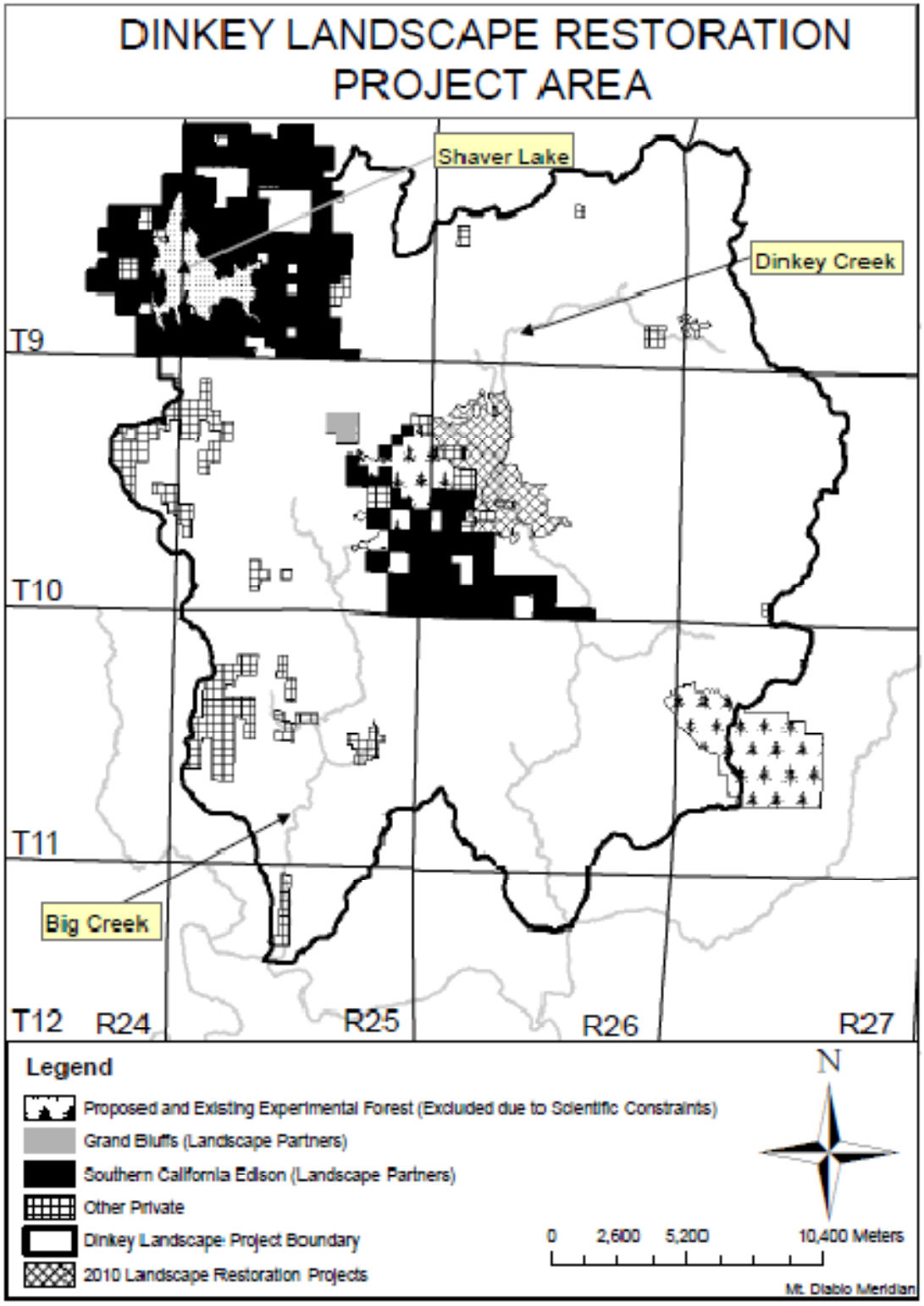


Figure 1. Project landscape and landscape partners.

12.0 Landscape Strategy

The DLR Project is a refinement of the strategy presented in An Ecosystem Management Strategy for Sierran Mixed Conifer Forests (PSW-GTR-220), which emphasizes ecological restoration as a guide for forest management treatments. The goal of this strategy is to restore heterogeneity (i.e., diversity in plant size, type, and density) at the landscape scale to approximate forest conditions produced by a frequent fire disturbance regime that shaped ecosystem processes. The strategy creates a mosaic of forest densities and structures based on the influence of aspect, slope position and steepness on fire intensity and frequency, site productivity, and tree species composition. The landscape strategy includes using prescribed fire both for restoration purposes and to reduce existing fuels and fuels created from treatments. Tree removal is also proposed to approximate the tree numbers and growing space density specified in the desired condition.

An Ecosystem Strategy for Sierran Mixed Conifer Forests is the foundational restoration document for the DLR proposal. The Dinky Collaborative Landscape Restoration Strategy (2010) identifies specific landscape features, conditions, species and habitats that help refine PSW-GTR-220. PSW-GTR-220 and the Dinky Collaborative Landscape Restoration Strategy can be found online by clicking on the Sierra National Forest intranet web-site at: http://fsweb.sierra.r5.fs.fed.us/, or the following direct links.

http://fsweb.sierra.r5.fs.fed.us/fs/FINAL_Sierra_Dinkey_Strategy.pdf

http://fsweb.sierra.r5.fs.fed.us/fs/psw_gtr220_2nd_printing.pdf